

IN THE CLAIMS:

Please cancel claims 1-44 without prejudice or disclaimer. Please add new claims 45-76. Please note that all claims currently pending and under consideration in the referenced application are shown below. Please enter these claims as amended. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1-44 (Canceled)

45. (New) A rocket motor assembly, comprising:
a shear ply interposed between a rocket motor case and a skirt, the shear ply comprising a rubber component cured from a precursor composition comprising:

a first hydrogenated nitrile conjugated-diene copolymer modified by a metal salt unsaturated carboxylic acid ester, wherein the first hydrogenated nitrile conjugated-diene copolymer is derived from a first composition comprising a first ethylenically unsaturated nitrile and a first conjugated diene;

a second hydrogenated nitrile conjugated-diene copolymer derived from a second composition comprising a second ethylenically unsaturated nitrile and a second conjugated diene; and

a curing agent.

46. (New) The rocket motor assembly of claim 45, wherein the first ethylenically unsaturated nitrile and the second ethylenically unsaturated nitrile are identical or different and are each selected to comprise at least one member selected from the group consisting of acrylonitrile and methacrylonitrile.

47. (New) The rocket motor assembly of claim 45, wherein the first ethylenically unsaturated nitrile and the second ethylenically unsaturated nitrile each comprise acrylonitrile.

48. (New) The rocket motor assembly of claim 45, wherein the first conjugated diene and the second conjugated diene are identical or different and are each selected to comprise at least one member selected from the group consisting of butadiene, isoprene, dimethylbutadiene, 1,3-pentadiene, and piperylene.

49. (New) The rocket motor assembly of claim 45, wherein the first conjugated diene and the second conjugated diene each comprise butadiene.

50. (New) The rocket motor assembly of claim 45, wherein the metal salt unsaturated carboxylic acid ester is derived from at least one ethylenically unsaturated monocarboxylic acid and at least one member selected from the group consisting of a metal and a metallic compound, and wherein the at least one ethylenically unsaturated monocarboxylic acid comprises at least one member selected from the group consisting of acrylic acid, methacrylic acid, crotonic acid, and 3-butenic acid.

51. (New) The rocket motor assembly of claim 45, wherein the metal salt unsaturated carboxylic acid ester is derived from at least one ethylenically unsaturated dicarboxylic acid and at least one member selected from the group consisting of a metal and metallic compound, and wherein the at least one ethylenically unsaturated dicarboxylic acid comprises at least one member selected from the group consisting of maleic acid, fumaric acid, and itaconic acid.

52. (New) The rocket motor assembly of claim 45, wherein the metal salt unsaturated carboxylic acid ester comprises at least one element selected from the group consisting of zinc, magnesium, calcium, and aluminum.

53. (New) The rocket motor assembly of claim 45, wherein the metal salt unsaturated carboxylic acid ester comprises zinc dimethacrylate.

54. (New) The rocket motor assembly of claim 45, wherein the curing agent comprises a peroxide curing agent.

55. (New) The rocket motor assembly of claim 45, wherein the curing agent comprises 2,2'-bis(t-butylperoxy)diisopropyl benzene.
56. (New) The rocket motor assembly of claim 45, wherein the curing agent is dispersed in a clay carrier.
57. (New) The rocket motor assembly of claim 45, wherein the precursor composition is essentially free of silica.
58. (New) The rocket motor assembly of claim 45, wherein carbon-carbon double bonds in each of the first hydrogenated nitrile conjugated-diene copolymer and the second hydrogenated nitrile conjugated-diene copolymer are hydrogenated to 85% to 95% saturation.
59. (New) The rocket motor assembly of claim 45, wherein carbon-carbon double bonds in each of the first hydrogenated nitrile conjugated-diene copolymer and the second hydrogenated nitrile conjugated-diene copolymer are hydrogenated to 90% to 92% saturation.
60. (New) The rocket motor assembly of claim 45, wherein the shear ply comprises a laminate of the rubber component and a fibrous material.
61. (New) The rocket motor assembly of claim 60, wherein the fibrous material comprises a graphite fiber/epoxy composite.
62. (New) A method of transferring loads between a skirt and a composite rocket motor case of a rocket motor assembly, the method comprising:
providing a first hydrogenated nitrile conjugated-diene copolymer modified with a metal salt unsaturated carboxylic acid, wherein the first hydrogenated nitrile conjugated-diene copolymer is derived from a first composition comprising a first ethylenically unsaturated nitrile and a first conjugated diene, wherein the metal salt unsaturated carboxylic acid is derived from an ethylenically unsaturated carboxylic acid having at least one carboxyl group and at least one

member selected from the group consisting of a metal and metallic compound;

providing a second hydrogenated nitrile conjugated-diene copolymer derived from a second composition comprising a second ethylenically unsaturated nitrile and a second conjugated diene, wherein the second hydrogenated nitrile conjugated-diene copolymer is not modified with a metal salt unsaturated carboxylic acid;

blending the first hydrogenated nitrile conjugated-diene copolymer and the second hydrogenated nitrile conjugated-diene copolymer to form a blend;

curing the blend with a curing agent to form a rubber shear ply; and

interposing the rubber shear ply between a skirt and a composite rocket motor case of a rocket motor assembly.

63. (New) The method of claim 62, wherein the first ethylenically unsaturated nitrile and the second ethylenically unsaturated nitrile are identical or different, and are each selected to comprise at least one member selected from the group consisting of acrylonitrile and methacrylonitrile.

64. (New) The method of claim 62, wherein the first ethylenically unsaturated nitrile and the second ethylenically unsaturated nitrile each comprise acrylonitrile.

65. (New) The method of claim 62, wherein the first conjugated diene and the second conjugated diene are identical or different, and are each selected to comprise at least one member selected from the group consisting of butadiene, isoprene, dimethylbutadiene, 1,3-pentadiene, and piperylene.

66. (New) The method of claim 62, wherein the first conjugated diene and the second conjugated diene each comprise butadiene.

67. (New) The method of claim 62, wherein the metal salt unsaturated carboxylic acid is derived from at least one ethylenically unsaturated monocarboxylic acid and at least one member selected from the group consisting of a metal and metallic compound, and wherein the at

least one ethylenically unsaturated monocarboxylic acid comprises at least one member selected from the group consisting of acrylic acid, methacrylic acid, crotonic acid, and 3-butenic acid.

68. (New) The method of claim 62, wherein the metal salt unsaturated carboxylic acid is derived from at least one ethylenically unsaturated dicarboxylic acid and at least one member selected from the group consisting of a metal and metallic compound, and wherein the at least one ethylenically unsaturated dicarboxylic acid comprises at least one member selected from the group consisting of maleic acid, fumaric acid, and itaconic acid.

69. (New) The method of claim 62, wherein a metal salt of the metal salt unsaturated carboxylic acid comprises at least one element selected from the group consisting of zinc, magnesium, calcium, and aluminum.

70. (New) The method of claim 62, wherein the metal salt unsaturated carboxylic acid comprises zinc dimethacrylate.

71. (New) The method of claim 62, wherein curing the blend with a curing agent comprises curing the blend with a peroxide curing agent.

72. (New) The method of claim 62, wherein curing the blend with a curing agent comprises curing the blend with 2,2'-bis(t-butylperoxy)diisopropyl benzene.

73. (New) The method of claim 62, wherein curing the blend with a curing agent comprises curing the blend with a curing agent dispersed in a clay carrier.

74. (New) The method of claim 62, wherein the rubber shear ply is essentially free of silica.

75. (New) The method of claim 62, wherein carbon-carbon double bonds in each of the first hydrogenated nitrile conjugated-diene copolymer and the second hydrogenated nitrile

conjugated-diene copolymer are hydrogenated to 85% to 95% of saturation.

76. (New) The method of claim 62, wherein carbon-carbon double bonds in each of the first hydrogenated nitrile conjugated-diene copolymer and the second hydrogenated nitrile conjugated-diene copolymer are hydrogenated to 90% to 92% of saturation.